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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,621	10/31/2001	Takahiro Okada	P/1071-1495	1155

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Steven I. Weisburd, Esq.
Dickstein Shapiro Morin & Oshinsky LLP
1177 Avenue of the Americas - 41st Floor
New York, NY 10036-2714

EXAMINER	
GLENN, KIMBERLY E	

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/001,621	OKADA ET AL.	
	Examiner	Art Unit	
	Kimberly E Glenn	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-27* is/are pending in the application.

4a) Of the above claim(s) *1-12* is/are withdrawn from consideration.

5)☒ Claim(s) *22-27* is/are allowed.

6)☒ Claim(s) *13 and 16-21* is/are rejected.

7)☒ Claim(s) *14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al US Patent 5,365,209.

Ito et al disclose a dielectric member 12 having two coaxial resonators 1 and 2 disclose within it. The dielectric member is covered with an outer conductor 5. The resonators can be considered filters with narrow frequencies. An interstage coupling window is formed in the outer conductor between the resonators. The input and output coupling strip lines are on the front and the rear surfaces of the dielectric substrate 3. The resonators 1, 2 have their open-end faces 1a, 2a positioned on the input and output coupling strip lines 9, 10, respectively, and are affixed to the dielectric substrate 3. Therefore, the inner conductors of resonators are shorted at 1b and 2b. (Figure 1 and column 4 line 17 through column 5 lines 34)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al US Patent 5,365,209.

Ito et al teaches a dielectric filter comprising a dielectric member 12 having two coaxial resonators 1 and 2 disclose within it. The dielectric member is covered with an outer conductor 5. The resonators can be considered filters with narrow frequencies. An interstage coupling window is formed in the outer conductor between the resonators. The input and output coupling strip lines are on the front and the rear surfaces of the dielectric substrate 3. The resonators 1, 2 have their open-end faces 1a, 2a positioned on the input and output coupling strip lines 9, 10, respectively, and are affixed to the dielectric substrate 3. Therefore, the inner conductors of resonators are shorted at 1b and 2b.

The Ito et al is shown to teach all the limitation of the claim with the exception of a ground connectable metal covers connected to the outer conductor of the dielectric block and the dielectric filter forming antenna duplexer.

Ito et al disclose in figure 11, a conductive cover connected to the outer conductor. (Column 6 lines 47 through columns 7 line 12)

The motivation suggestion for this modification would have been to provide the advantageous benefit of high performance free variation in the filter characteristics and impairment of the characteristic due to variations in the grounding condition.

Ito et al discloses in figure 26, the dielectric filter being used in duplexer. The duplexer comprises a transmitting (Tx) filter 46 and a receiving (Rx) filter 47. A matching circuit 49 is connected to the transmitting (Tx) filter 46 and the receiving (Rx) filter 47 to a single antenna by strip lines on a dielectric substrate 3, which has mounted thereon the coaxial resonators 1, 37 and 2 of input, intermediate and output stages to provide the duplexer.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the dielectric filter such that it would have been used to form a duplexer since this is an obvious intended used for the dielectric filter.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al US Patent 5,3645,209 in view of Makimoto et al US Patent 4,506,241.

Ito et al teaches a dielectric filter comprising a dielectric member 12 having two coaxial resonators 1 and 2 disclose within it. The dielectric member is covered with an outer conductor 5. The resonators can be considered filters with narrow frequencies. An interstage coupling window is formed in the outer conductor between the resonators. The input and output coupling strip lines are on the front and the rear surfaces of the dielectric substrate 3. The resonators 1, 2 have their open-end faces 1a, 2a positioned on the input and output coupling strip lines 9, 10, respectively, and are affixed to the dielectric substrate 3. Therefore, the inner conductors of resonators are shorted at 1b and 2b.

Thus Ito et al is shown to teach all the limitations of the claims with the exceptions of the inner conductor of one of the resonators being a stepped hole wherein the stepped holes at the first face is smaller than the diameter at the second face.

Makimoto et al disclose in figure 2 a stepped resonator having a smaller diameter at one end and larger diameter at the other end. (Column 4 line 4 through column 5 line 35)

One skilled in the art, at the time of the invention, would have found it obvious to step the inner conductors of the resonators in order to provide the benefit of changing the impedance of the resonators, which will allow the resonators to suppress harmonic components.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al US Patent 5,3645,209 in view of Tada et al US Patent 5,986,521(of record).

Ito et al teaches a dielectric filter comprising a dielectric member 12 having two coaxial resonators 1 and 2 disclose within it. The dielectric member is covered with an outer conductor 5. The resonators can be considered filters with narrow frequencies. An interstage coupling window is formed in the outer conductor between the resonators. The input and output coupling strip lines are on the front and the rear surfaces of the dielectric substrate 3. The resonators 1, 2 have their open-end faces 1a, 2a positioned on the input and output coupling strip lines 9, 10, respectively, and are affixed to the dielectric substrate 3. Therefore, the inner conductors of resonators are shorted at 1b and 2b.

Thus Ito et al is shown to teach all the limitations of the claims with the exceptions of the inner conductor being planar conductors.

Tada et al discloses a multi-passband filter according to an eighth embodiment of the present invention. This filter is a Triplate-type modification of the filter shown in FIGS. 12(A)-

12(D). More specifically, the filter of this embodiment has two dielectric plates 21a and 21b. Various resonant lines similar to those of the filter shown in FIGS. 12(A)-12(D) are formed on one dielectric plate 21a, while resonant lines configured mirror-symmetrically to those shown in FIGS. 12(A)-12(D) are disposed on the other dielectric plate 21b. Then, the surfaces of the two dielectric plates 21a and 21b on which the resonant lines are formed are laminated.

One skilled in the art at the time of the invention would have found it obvious to replace the coaxial resonator of Ito et al with the resonator line as taught by Tada et al since examiner take notice of the equivalency of the resonator line and the coaxial resonators for their use in the filter art and the selection of any of these know equivalents to provide a resonate signal would be within the level of ordinary skill in the art.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al US Patent 5,3645,209 in view of Tada et al US Patent 6,177,852.

Ito et al teaches a dielectric filter comprising a dielectric member 12 having two coaxial resonators 1 and 2 disclose within it. The dielectric member is covered with an outer conductor 5. The resonators can be considered filters with narrow frequencies. An interstage coupling window is formed in the outer conductor between the resonators. The input and output coupling strip lines are on the front and the rear surfaces of the dielectric substrate 3. The resonators 1, 2 have their open-end faces 1a, 2a positioned on the input and output coupling strip lines 9, 10, respectively, and are affixed to the dielectric substrate 3. Therefore, the inner conductors of resonators are shorted at 1b and 2b.

Thus Ito et al is shown to teach all the limitations of the claims with the exceptions of a conductor hole formed in the dielectric block and extending from the first face to the second face and the conductor hole being part of the input /output terminal.

Tada et al disclose in figure 1b a ground hole 25. The dielectric resonator R4 and the dielectric resonator R5 connected to the antenna terminal ANT is electromagnetically mutually shielded by the inner conductor 35 of the ground hole 25.

It would have been obvious to one having ordinary skill in the art to provide the dielectric filter of Ito et al with a ground hole as taught by Tada et al. The motivation/ suggestion for this modification would have been provide the benefit of cutting off the mutual electromagnetic coupling between the resonator holes.

Allowable Subject Matter

Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 22-27 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: With regards to claims 14 and 22-27, the prior art of record does not disclose or fairly teach a outer conductor free portion being formed continuously around the outer faces of the dielectric block. With regards to claims 15 and 22-27, the prior art of record does not disclose or fairly teach outer conductor free portion being arranged continuously around with the periphery of the input /output terminal.

Response to Arguments

Applicant's arguments with respect to claims 13- 27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E Glenn whose telephone number is (703) 306-5942. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Kimberly E Glenn
Examiner
Art Unit 2817

keg

Robert Pascal
Supervisory Patent Examiner
Technology Center 2800